



# City of Casa Grande



## Downtown Traffic Circulation Study

Public Open House and City Council Work Session

September 20, 2010

**WILSON**  
& COMPANY

# Agenda

- Project Status
- Downtown Network Connectivity Alternatives
- Network Circulation Alternatives
- Recommended Transportation Plan and Implementation
- Next Steps

## Project Status

- Evaluation of Rail Crossing Alternatives and Stakeholder Feedback led to Key Decision on Preferred Rail Crossing Alternative
- Network Connectivity Alternatives were Established to Integrate Rail Crossing into Downtown Street Network
- Evaluation Led to Selection of Preferred Network Connectivity
- Network Circulation Alternatives were Developed and Analyzed
- Interim-year Analysis Conducted to Identify Timeline for Implementation of Recommended Transportation Plan
- Analyses and Findings Documented in Draft Report

## Preferred Rail Crossing Alternative

- **6 Initial Rail Crossing Alternatives were Evaluated**

Thornton Road Overpass  
Florence Street Overpass  
Florence Street Underpass

Pinal Avenue Overpass  
UPRR Bypass  
Trekell Road Overpass

- **3 Highest Ranking Alternatives presented at Infrastructure Briefing Group, Public Meeting and City Council Study Session (February 16, 2010)**

Thornton Road Overpass  
Pinal Avenue Overpass  
Trekell Road Overpass

# Preferred Rail Crossing Alternative

CRITERIA	ALTERNATIVE					
	B2 PINAL AVE (SR 387) OVERPASS AT UPRR		C TREKELL ROAD OVERPASS AT UPRR		E THORNTON ROAD OVERPASS AT UPRR	
Project Features						
Project Elements	Straight RR Overpass West Bypass via 1 <sup>st</sup> St./ Connector to S. Florence St. Connector		Straight RR Overpass		Straight RR Overpass	
Roadway Facility	4-lane		4-lane planned in the future		4-lane planned in the future	
Length of Project	1.25 miles		0.25 miles		0.25 miles	
Right-of-Way Required	1.25 miles		None		None	
Project Goals & Objectives						
Create Direct	Yes	1	Yes	1	Yes	1
Support Downtown Redevelopment	Improves access to Downtown	1	No	3	No	3
Remove railroad operations impediment to north-south through traffic in the Downtown	Yes	1	No	3	No	3
Support Economic Development	Improves regional access Improves Downtown access Opens land SW of Downtown to future development	1	Provides improved access to I-8	2	Provides improved access to I-8	2
Railroad Impacts						
Construction	Little or no impacts	1	Little or no impacts	1	Little or no impacts	1
Operations	Little or no impacts	1	Little or no impacts	1	Little or no impacts	1
Consistency with Local Plans						
Land Use	Would support future Industrial area consistent with General Plan	1	Would improve accessibility in Industrial area consistent with General Plan	1	Would improve accessibility in Industrial area consistent with General Plan	1
Future Development	Would encourage growth SW of the Downtown	1	No significant impact	2	No significant impact	2

# Preferred Rail Crossing Alternative

CRITERIA	ALTERNATIVE			
	B2 PINAL AVE (SR 387) OVERPASS AT UPRR	C THORNTON ROAD OVERPASS AT UPRR	E TREKELL ROAD OVERPASS AT UPRR	
<b>Cost</b>				
Estimate Cost Cost Factors	\$10 to \$15 million Elevated bridge structure Additional cost for Main St./2nd St. connectors Additional right-of-way costs (not included)	2 \$6 to \$8 million Elevated bridge structure Minimal right-of-way costs (not included)	1 \$6 to \$8 million Elevated bridge structure Minimal right-of-way costs (not included)	1
<b>Safety</b>				
# of At-Grade RR Crossings	6 between Thornton and Trekell UPRR will likely require elimination of 1 or 2 existing crossings	2 6 to 5 overpass eliminates one crossing	2 6 to 5 Trekell overpass eliminates one crossing	2
<b>Environmental Impacts</b>				
Cultural Resources	Impacts at the fringe of Historic Main Street District One structure on Historic Register indirectly impacted Further study is required to confirm impacts.	2 No apparent impacts. Further study is required to confirm impacts.	1 No apparent impacts. Further study is required to confirm impacts.	1
Geometric Design/ Visual/Aesthetics	Parcel takings would bring opportunity for modern design of street network and pedestrian ways Overpass at RR would create major vertical superstructure in the Downtown	2 Overpass would create major visual element in landscape	3 Overpass would create major visual element in landscape	3
Potential Takings/Relocations	Three business east of Pinal between 1 <sup>st</sup> and 2 <sup>nd</sup> Sts. One business between 1 <sup>st</sup> St. and UPRR East or west side of : East - 2 residential, 1 business; West - 4 residential Agricultural land south of	3 None	1 None	1
OVERALL RANKING	19	21	21	
Number of "3" Rankings	1	3	3	

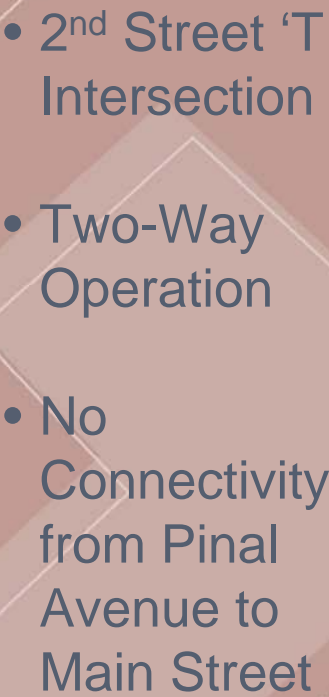
- Greatest Influence on Downtown Area that was the Subject of this Study
- Provides Additional North-South Connection between I-10 and I-8
- Improves Access to Downtown
- Eliminates 'Five Points' Intersection



# Network Connectivity Alternatives

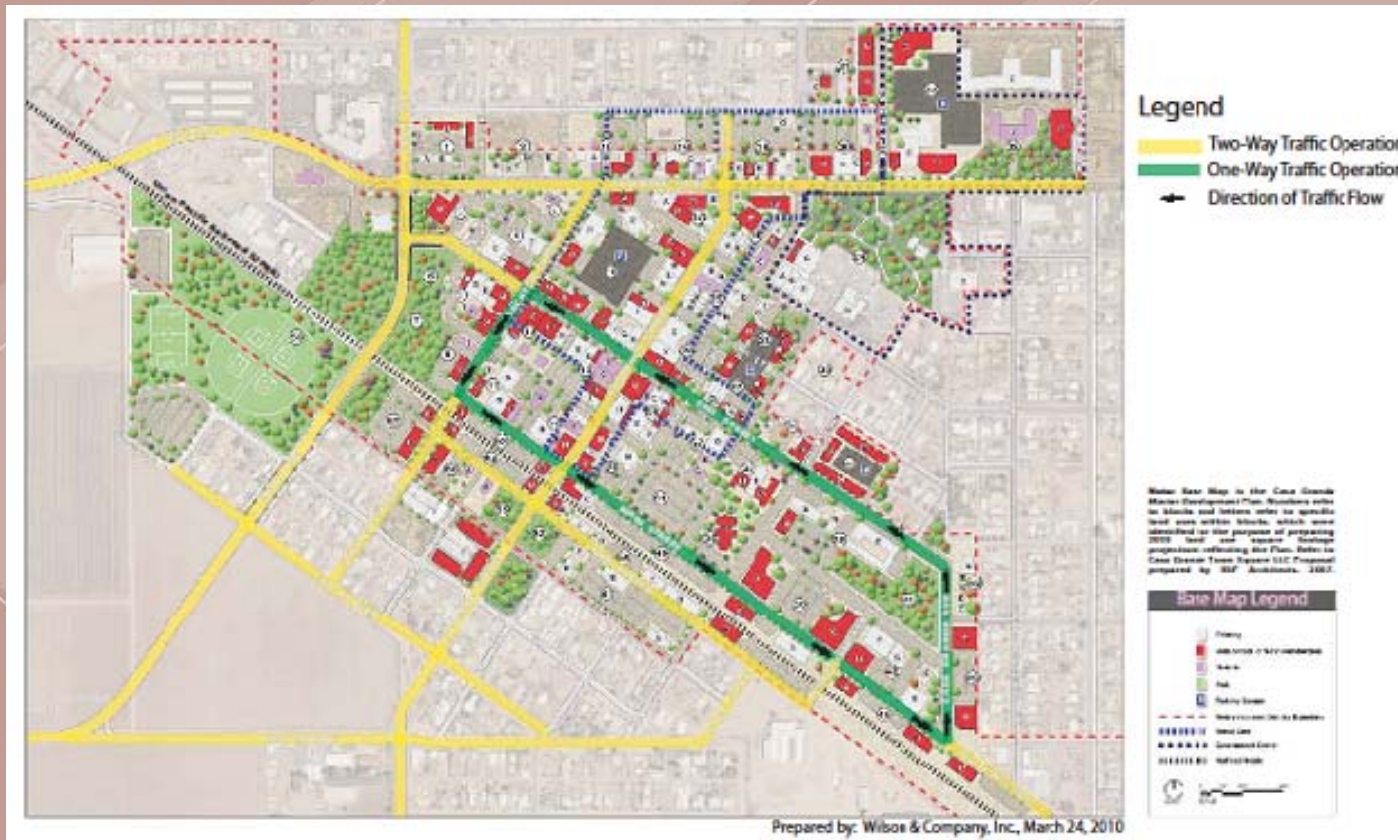
- Need to Integrate New Pinal Avenue Crossing into Downtown Street Network
- Elevation of Roadway will Limit At-Grade Intersections on Pinal Avenue
- Possible Connectivity Alternatives to 2<sup>nd</sup> Street and Main Street
- Four Connectivity Scenarios (A-D) Developed

## Scenario A



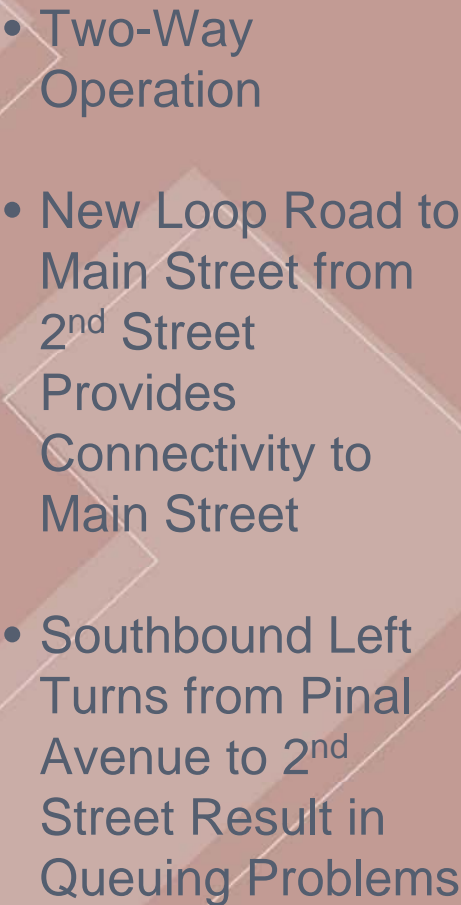
# Network Connectivity Alternatives

## Scenario B



- 2<sup>nd</sup> Street 'T' Intersection
- One-Way Couplet with Main Street
- No Connectivity from Pinal Avenue to Main Street

## Scenario C



# Network Connectivity Alternatives

## Scenario D



- One-Way Couplet with Main Street
- New Loop Road to Main Street from 2<sup>nd</sup> Street Provides Connectivity to Main Street
- Southbound Left Turns from Pinal Avenue to 2<sup>nd</sup> Eliminated

# Network Connectivity Alternatives

Criteria	Scenario A 2 <sup>nd</sup> Street 'T' Intersection: No Main Street Connectivity, Without One-Way Couplet	Scenario B 2 <sup>nd</sup> Street 'T' Intersection: No Main Street Connectivity, With One-Way Couplet	Scenario C 2 <sup>nd</sup> Street/Main Street Loop: Main Street Connectivity, Without One-Way Couplet	Scenario D 2 <sup>nd</sup> Street/Main Street Loop: Main Street Connectivity, With One-Way Couplet
<b>Traffic Impacts</b>				
Congestion	2 <sup>nd</sup> Street over capacity. May require conversion to four travel lanes and/or intersection improvements Potential left-turn storage issues on Pinal Avenue between Florence Boulevard and 2 <sup>nd</sup> Street may result in spillback, causing blockage of Florence Boulevard/Pinal Avenue intersection	Four-lane, two-way operations required on 2 <sup>nd</sup> Street between Pinal Avenue and Sacaton Street Potential left-turn storage issues on Pinal Avenue between Florence Boulevard and 2 <sup>nd</sup> Street may result in spillback causing blockage of Florence Boulevard/Pinal Avenue intersection Improved level of service on 2 <sup>nd</sup> Street east of Sacaton	2 <sup>nd</sup> Street over capacity. May require conversion to four travel lanes and/or intersection improvements Potential left-turn storage issues on Pinal Avenue between Florence Boulevard and 2 <sup>nd</sup> Street may result in spillback causing blockage of Florence Boulevard/Pinal Avenue intersection	Improved level of service on 2 <sup>nd</sup> Street Potential left-turn storage issues on Pinal Avenue between Florence Boulevard and 2 <sup>nd</sup> Street resolved by eliminating southbound left-turn movement
Accessibility	Indirect access to Main Street via 2 <sup>nd</sup> and Sacaton Streets Access to fronting properties or businesses from east and west maintained	Indirect access to Main Street via 2 <sup>nd</sup> and Sacaton Streets May result in circuitous travel to access fronting properties or businesses	Improved access to Main Street and W. 1 <sup>st</sup> Street Access to fronting properties or businesses from east and west maintained	Improved access to Main Street and W. 1 <sup>st</sup> Street May result in circuitous travel to access fronting properties or businesses
<b>Cost</b>				
Cost Factors	Need for multiple left-turn lanes likely to accommodate anticipated traffic from Pinal Avenue to 2 <sup>nd</sup> Street	Need for multiple left-turn lanes likely to accommodate anticipated traffic from Pinal Avenue to 2 <sup>nd</sup> Street Restriping/restructuring traffic operations to accommodate one-way movements	Addition of a west leg to intersection (Main Street) Right-of-way and relocation costs associated with Main Street Loop construction Need for multiple left turn lanes likely to accommodate anticipated traffic from Pinal Avenue to 2 <sup>nd</sup> Street	Addition of a west leg to intersection (Main Street) Right-of-way and relocation costs associated with Main Street Loop construction Restriping/restructuring traffic operations to accommodate one-way movements
<b>Safety</b>				
Vehicle Operations	Potential for traffic conflicts unchanged	Reduces traffic conflicts	Potential for traffic conflicts unchanged	Reduces traffic conflicts
Pedestrian/Bicyclist	Four travel lanes on 2 <sup>nd</sup> Street is less pedestrian/bicycle friendly	Favors pedestrians and cyclists	Four travel lanes on 2 <sup>nd</sup> Street is less pedestrian/bicycle friendly	Favors pedestrians and cyclists

## Network Connectivity Alternatives

- Confirmed Feasibility of having Four-Legged, Elevated Intersection at the Realigned 2<sup>nd</sup> Street Location
- Evaluation Led to Conclusion that Main Street Connectivity (Loop Road) was Desirable
- Additional Detailed Analysis Required to Determine Benefits of One-Way (Scenario C) and Two-Way (Scenario D) Operations

## Network Circulation Alternatives

- **Peak Hour Intersection Analysis of Scenarios C & D Revealed that Similar Improvements would be Required under both Scenarios at the Following Locations:**

SR-84 & Thornton Road  
Pinal Avenue & Florence Boulevard  
Florence Boulevard & Walnut Drive  
Florence Boulevard & Trekell Road

Thornton Road & Ash Avenue  
Jimmie Kerr Boulevard & 2<sup>nd</sup> Street  
Jimmie Kerr Boulevard & Trekell Road

- **Primary Difference was Operations at Intersection of Pinal Avenue at 2<sup>nd</sup> Street**

## Network Circulation Alternatives

- Simulation Analysis Prepared to Review Downtown Network Operations, Particularly Along Pinal Avenue
- Results of Simulation Analysis indicate Preference for One-Way Operations to Eliminate Southbound Left Turn Queuing at the Pinal Avenue/2<sup>nd</sup> Street intersection
- Confirmed that One-Way Operations Improved East-West Mobility and Increased Capacity for Redevelopment
- Timeline for Conversion to One-Way Operation Identified in Conjunction with Interim Phasing Analysis

# Network Circulation Alternatives

## Alternative Streetscapes

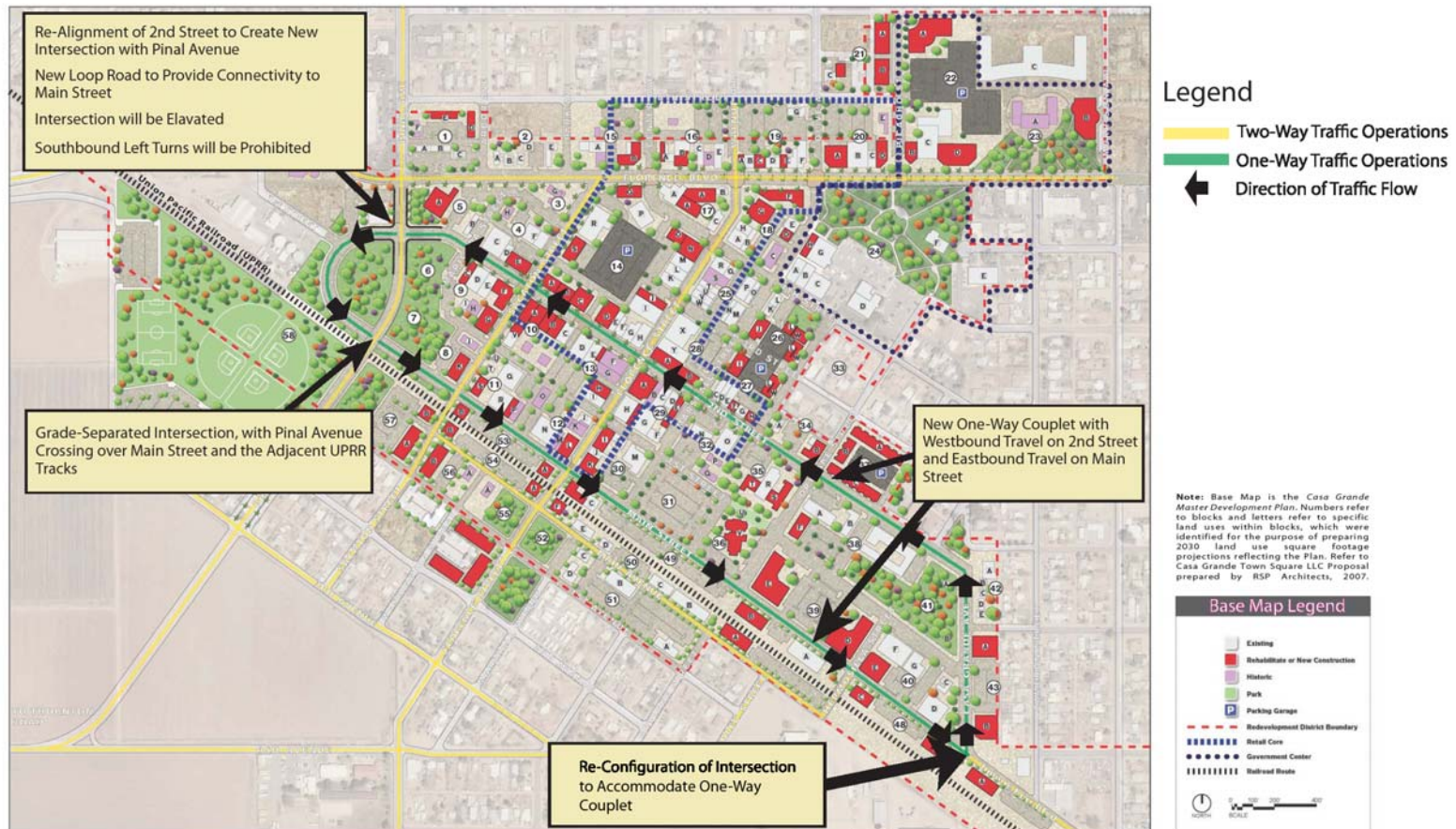
- Redevelopment Affords Opportunity to Improve the Streetscape of the Downtown Street Network
- Various Cross-Sections were Developed for Two-Way (Scenario C) and One-Way (Scenario D) Operations that would Improve the Pedestrian and Bicycle Scale of the Downtown
- Cross-Sections were Developed for both Existing Pavement Width on 2<sup>nd</sup> Street, as well as a Reduced Pavement Width

# Network Circulation Alternatives

## Alternative Streetscapes

- Opportunities May Exist to Implement Enhanced Streetscapes along 2<sup>nd</sup> Street and/or Main Street in Conjunction with Redevelopment
- May Begin with a Revised Two-Way Streetscape and Convert to One-Way Streetscape
- Additional Analysis Conducted to Determine Correlation of Streetscape Improvements to the Recommended Transportation Plan

# Recommended Transportation Plan and Implementation



# Recommended Transportation Plan and Implementation

- **Interim Year (2020) Analysis Assumptions**

- Downtown Core at 50% of Assumed Year 2030 Redevelopment Levels
- Development in Remainder of Study Area Derived from SATS
- Downtown Core Roadway Network Same as Existing
- Roadway Network in Remainder of Study Area Derived from SATS

- **Interim Year (2020) Roadway Segment Deficiencies**

- Gila Bend Highway (SR-84) west of Pinal Avenue
- Florence Boulevard (SR-287) east of Pinal Avenue, Casa Grande Avenue, and Trekell Road
- Main Street east of Florence Street

## Recommended Transportation Plan and Implementation

- 2<sup>nd</sup> Street Not Over Capacity as Two-Way Facility Under Interim Year (2020) Conditions
- Conversion to One-Way Operations Under Interim Conditions (Year 2020) Only Required IF:
  - Redevelopment Levels Exceed the 50% Analyzed Threshold Prior to Construction of the Pinal Avenue Grade-Separated Crossing
  - Pinal Avenue Grade-Separated Crossing is Constructed

# Recommended Transportation Plan and Implementation

- Interim Year (2020) Intersection Deficiencies
  - Focused on Year 2030 Deficient Intersections:

Deficient Intersection (Year 2030)	Year 2020 Level of Service	
	AM Peak	PM Peak
SR-84 & Thornton Road	F	F
Pinal Avenue & Florence Boulevard	E	F
Florence Boulevard & Walnut Drive	F	F
Florence Boulevard & Trekell Road	F	F
Thornton Road & Ash Avenue	F	F
Jimmie Kerr Boulevard/Main Street/2 <sup>nd</sup> Street	B	B
Jimmie Kerr Boulevard & Trekell Road	F	F

# Recommended Transportation Plan and Implementation

- **Improvements Required at “Five-Points” Intersection**
  - Interim Year (2020) Analysis Indicates Peak Period Deficiencies
  - Recommend Realigning 2<sup>nd</sup> Street to the South
  - Proximity of New Intersection to Florence Boulevard Required Restriction of Southbound Left Turn Movements
  - Recommend Extension of Pinal Avenue South to Main Street to Provide Alternative Route for Southbound Left Turns Into Downtown
  - Recommend Enhanced Intersection Lane Configurations

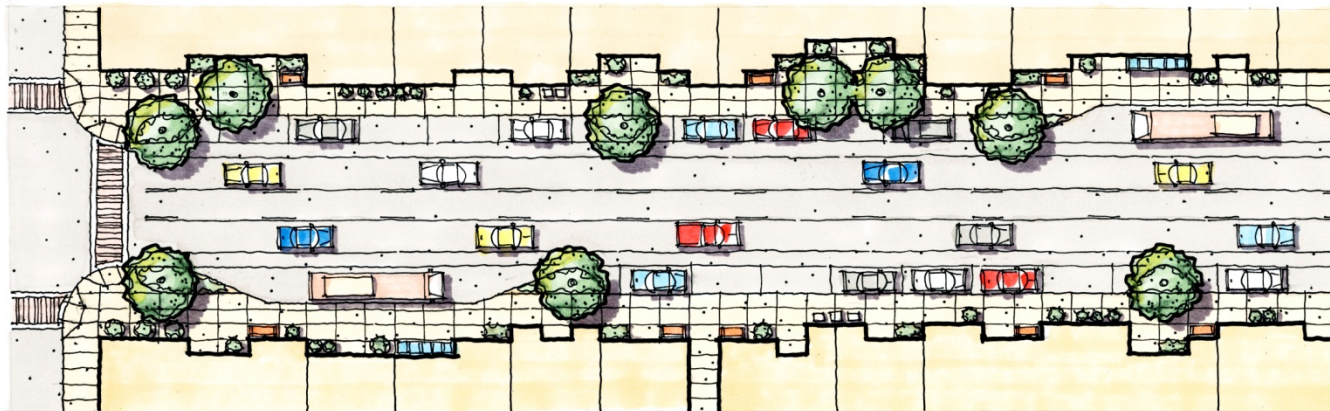
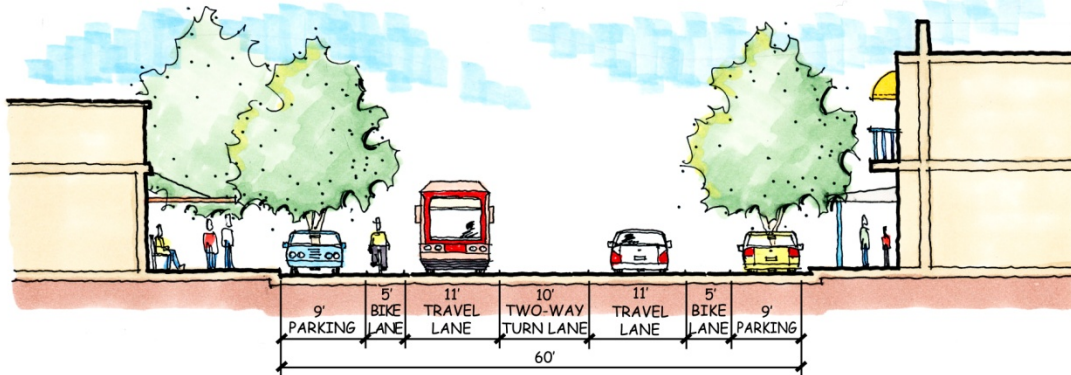
# Recommended Transportation Plan and Implementation

- **Phasing for Streetscape Improvements**

- Short-Term Streetscape Improvements to Maintain Two-Way Travel
- Mid-Term Streetscape Improvements to Maintain Two-Way Travel with a Reduced Pavement Width OR Conversion to One-Way Travel with Existing Pavement Width
- Ultimate Recommended Streetscape

# Recommended Transportation Plan and Implementation

## Short-Term Streetscape



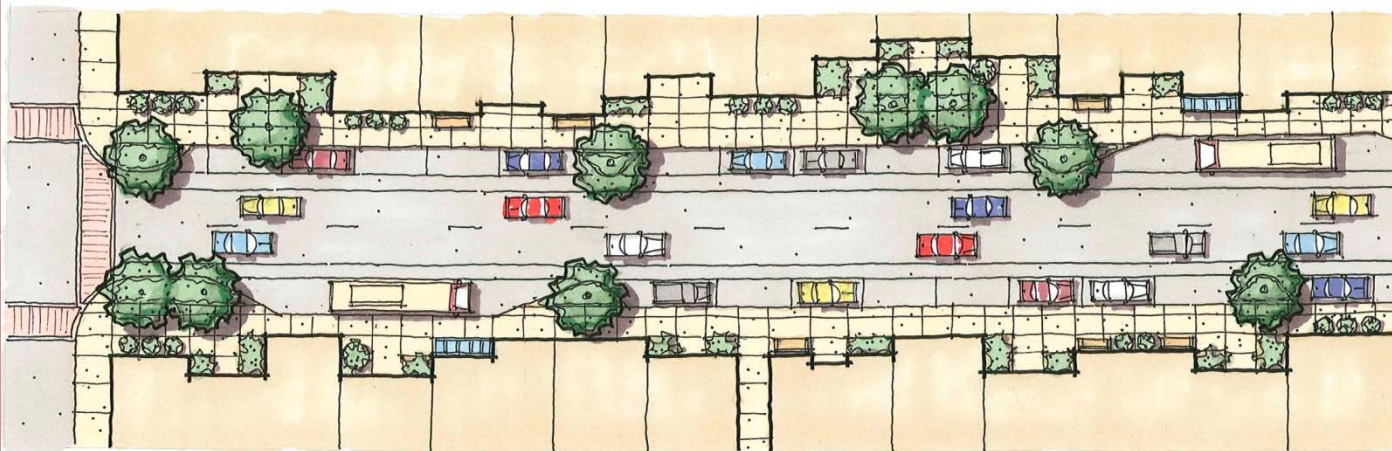
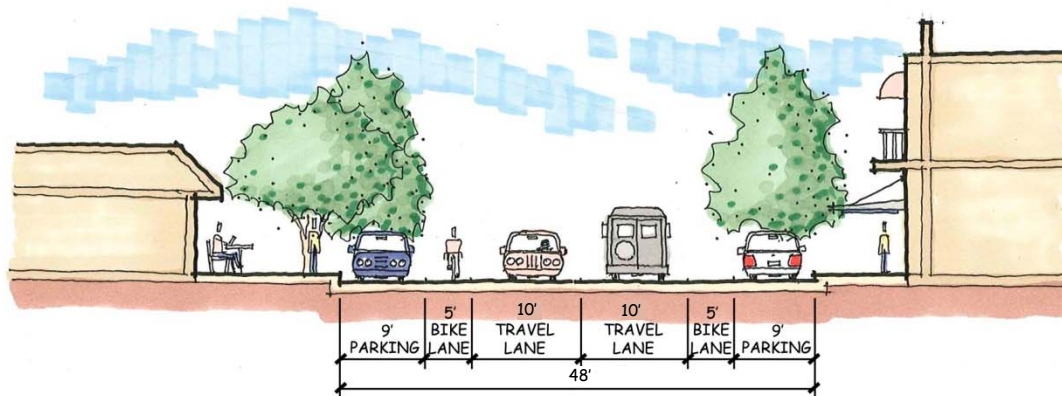
TWO-WAY TRAVEL/CENTER TURN LANE - EXISTING CURB LOCATION

Rendering by AECOM

- Existing Pavement Width
- Existing Sidewalk Width
- Restriping to Provide Bike Lanes & Center Turn Lane
- Construction of "Bulb Outs"
- Two-Way Traffic

# Recommended Transportation Plan and Implementation

## Mid-Term Streetscape Alternative



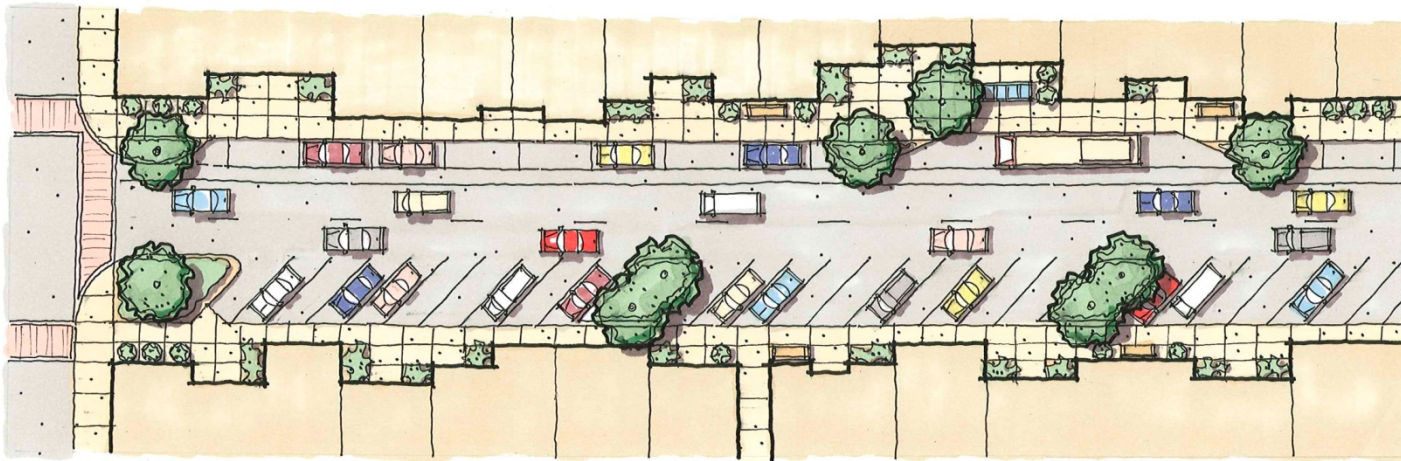
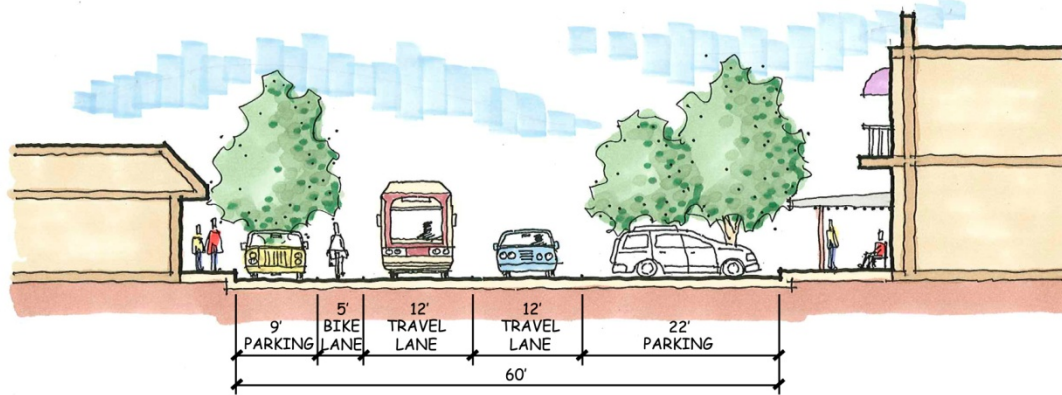
TWO-WAY TRAVEL - REVISED CURB LOCATION

Rendering by AECOM

- Narrowed Pavement Width
- Widened Sidewalks
- Restriping to Provide Bike Lanes
- Construction of "Bulb Outs"
- Two-Way Traffic

# Recommended Transportation Plan and Implementation

## Mid-Term Streetscape Alternative



ONE-WAY TRAVEL - EXISTING CURB LOCATION

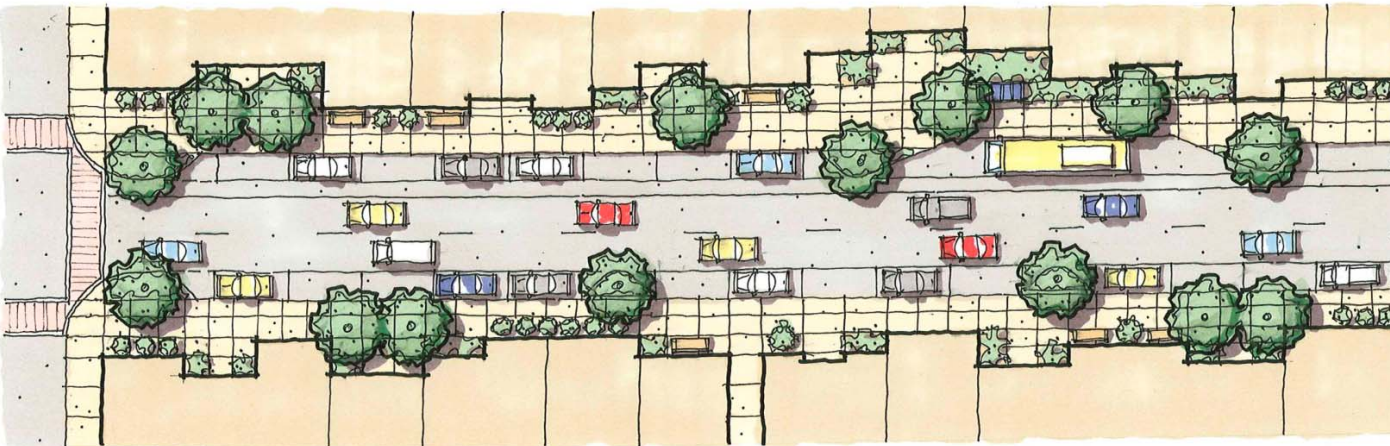
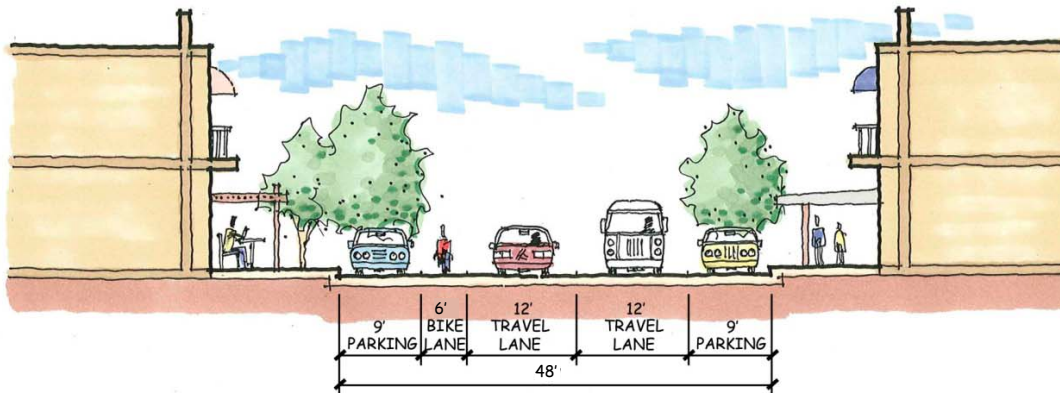
Rendering by AECOM

- Existing Pavement Width
- Existing Sidewalk Width
- Restriping to Provide Bike Lanes
- Construction of "Bulb Outs"
- One-Way Traffic

# Recommended Transportation Plan and Implementation

## Ultimate Streetscape

- Narrowed Pavement Width
- Widened Sidewalks
- Restriping to Provide Bike Lanes
- Construction of "Bulb Outs"
- One-Way Traffic

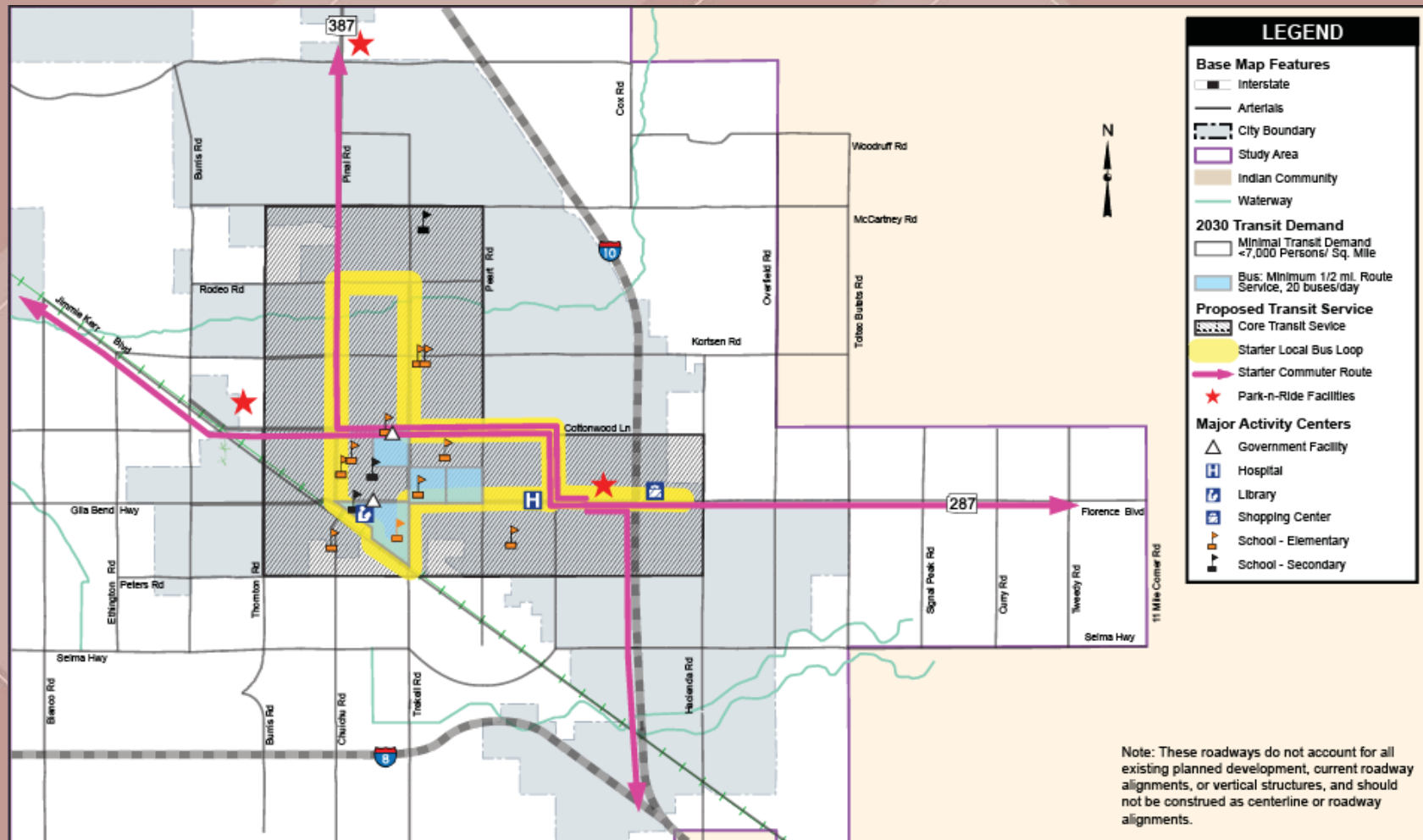


ONE-WAY TRAVEL - REVISED CURB LOCATION

Rendering by AECOM

# Recommended Transportation Plan and Implementation

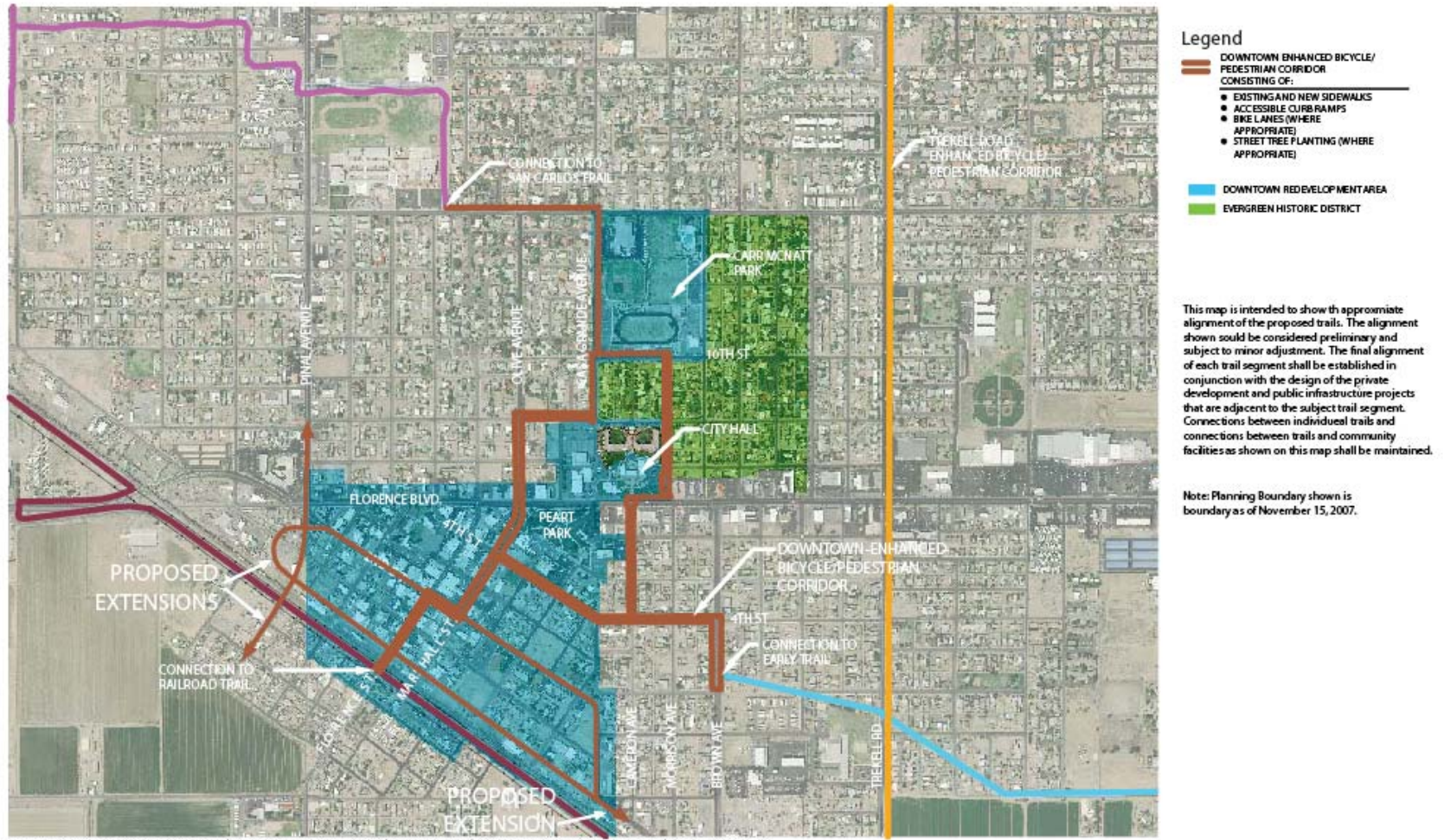
## Transit Plan



Source: Figure 6-3, Proposed Local and Commuter Transit Route, City of Casa Grande Small Area Transportation Study, Final Report, Wilson & Company, Inc., Engineers & Architects, July 2, 2007.

# Recommended Transportation Plan and Implementation

## Bicycle Plan



# Recommended Transportation Plan and Implementation

## • Summary of Recommended Improvements

- Short-term Improvements (anticipated pre-2020)
  - Implement the Short-term Streetscape Improvements to 2<sup>nd</sup> Street
  - Construct Improvements to Mitigate Year 2020 Intersection Deficiencies
  - Extend Pinal Avenue to Main Street and Realign 2<sup>nd</sup> Street to the South
- Mid-term Improvements (anticipated 2020-2030)
  - Implement the Selected Mid-term Streetscape Improvements
  - Construct Additional Improvements to Mitigate Year 2030 Intersection Deficiencies
  - Convert 2<sup>nd</sup> Street and Main Street to One-Way Operation and Reconfigure the Roundabout
  - Construct the New Pinal Avenue Grade Separated Crossing
- Long-term Improvements (anticipated post 2030)
  - Implement the Ultimate Streetscape Improvements

# Project Schedule/Next Steps

Upcoming Activities	Completion Date
Finalize Interim Draft Report (Chapters 1-8) on Recommended Buildout Plan	Completed
TAC Meeting Regarding Interim Draft Report (Recommended Buildout Plan)	Completed
Interim (Year 2020) Modeling for CIP Analysis	Completed
Develop CIP Project Descriptions & Costs	Completed
Identify Potential Funding Sources	Completed
TAC to Provide Comments on Interim Draft Report	Completed
Finalize Draft Report	Completed
TAC Meeting on CIP/Implementation Plan & Draft Final Report Comments	Completed
Respond to TAC Comments on Draft Report	Completed
Prepare Draft Final Report for Submittal to City Council & Public Review	Completed
Public Meeting/City Council Work Session	9/20
Respond to City Council/Public Review Comments	9/28
Produce Proof Copy of Final Report for City Approval	9/30
Deliver Final Document/Technical Products	10/8
Council Acceptance	10/18 (tentative)